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FILE 'SCISEARCH' ENTERED AT 16:48:03 ON 17 FEB 2004
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FILE 'AGRICOLA' ENTERED AT 16:48:03 ON 17 FEB 2004

=> s antimicrobial
L1 207946 ANTIMICROBIAL

=> s polyphemusin
L2 260 POLYPHEMUSIN

=> s l1 (p) l2
L3 60 L1 (P) L2

=> duplicate remove l3
DUPLICATE PREFERENCE IS 'MEDLINE, CAPLUS, BIOSIS, EMBASE, SCISEARCH, AGRICOLA'
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PROCESSING COMPLETED FOR L3
L4 25 DUPLICATE REMOVE L3 (35 DUPLICATES REMOVED)

=> d l4 1-25 ibib abs

L4 ANSWER 1 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:817286 CAPLUS
DOCUMENT NUMBER: 140:54349
TITLE: Cationic antimicrobial peptides activate a two-component regulatory system, PmrA-PmrB, that regulates resistance to polymyxin B and cationic antimicrobial peptides in Pseudomonas aeruginosa
AUTHOR(S): McPhee, Joseph B.; Lewenza, Shawn; Hancock, Robert E. W.
CORPORATE SOURCE: Department of Microbiology and Immunology, University of British Columbia, Vancouver, BC, V6T 1Z3, Can.
SOURCE: Molecular Microbiology (2003), 50(1), 205-217
CODEN: MOMIEE; ISSN: 0950-382X
PUBLISHER: Blackwell Publishing Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The two-component regulatory system PhoP-PhoQ of Pseudomonas aeruginosa regulates resistance to cationic antimicrobial peptides, polymyxin B and aminoglycosides in response to low Mg2+ conditions. We have identified a second two-component regulatory system, PmrA-PmrB, that regulates resistance to polymyxin B and cationic antimicrobial peptides. This system responds to limiting Mg2+, and is affected by a phoQ, but not a phoP mutation. Inactivation of the pmrB sensor kinase and pmrA response regulator greatly decreased the expression of the operon encoding pmrA-pmrB while expression of the response regulator pmrA in trans resulted in increased activation suggesting that the pmrA-pmrB operon is autoregulated. Interposon mutants in pmrB, pmrA, or in an intergenic region upstream of pmrA-pmrB exhibited two to 16-fold increased susceptibility to polymyxin B and cationic antimicrobial peptides. The pmrA-pmrB operon was also found to be activated by a no. of cationic peptides including polymyxins B and E, cattle indolicidin and synthetic variants as well as LL-37, a component of human innate immunity, whereas peptides with the lowest min. inhibitory concns. tended to be the weakest inducers. Addnl., we showed that the putative LPS modification operon, PA3552-PA3559, was also induced by cationic peptides, but its expression was only partially dependent on the PmrA-PmrB system. The discovery that the PmrA-PmrB two-component system regulates resistance to cationic peptides and that both it and the putative LPS modification system are induced by cationic antimicrobial peptides has major implications for the development of these antibiotics as a therapy for P. aeruginosa infections.

REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:10505 CAPLUS
DOCUMENT NUMBER: 136:79729
TITLE: Antimicrobial peptides and methods of use thereof
INVENTOR(S): Hancock, Robert E. W.; Zhang, Lijuan
PATENT ASSIGNEE(S): The University of British Columbia, Can.
SOURCE: PCT Int. Appl., 57 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002000687	A2	20020103	WO 2001-CA918	20010627
WO 2002000687	A3	20020906		
WO 2002000687	C2	20030918		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6337317	B1	20020108	US 2000-604864	20000627
EP 1294745	A2	20030326	EP 2001-944839	20010627
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
US 2002156017	A1	20021024	US 2002-42872	20020108

PRIORITY APPLN. INFO.: US 2000-604864 A 20000627
WO 2001-CA918 W 20010627

OTHER SOURCE(S): MARPAT 136:79729
AB A class of cationic, ***polyphemusin*** -like peptides having ***antimicrobial*** activity is provided. Examples of such peptides include FRWCFRVCYKGRCRYKCR (SEQ ID NO:3), RRWCFRVCYKGFCRYKCR (SEQ ID NO:4), and RRWCFRVCYRGRFCYRKCR (SEQ ID NO:11) (I). Also provided are methods for inhibiting the growth of microbes such as bacteria, yeast and viruses utilizing the peptides of the invention. The peptides are particularly useful for inhibiting endotoxemia in a subject. I provided protection against endotoxemia in mice.

L4 ANSWER 3 OF 25 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 2002:159736 BIOSIS
DOCUMENT NUMBER: PREV200200159736
TITLE: Antimicrobial peptides and methods of use thereof.
AUTHOR(S): Hancock, Robert E. W. [Inventor, Reprint author]; Zhang, Lijuan [Inventor]
CORPORATE SOURCE: Vancouver, Canada
ASSIGNEE: The University of British Columbia, Vancouver, Canada
PATENT INFORMATION: US 6337317 January 08, 2002
SOURCE: Official Gazette of the United States Patent and Trademark Office Patents, (Jan. 8, 2002) Vol. 1254, No. 2. http://www.uspto.gov/web/menu/patdata.html. e-file.
CODEN: OGUPE7. ISSN: 0098-1133.
DOCUMENT TYPE: Patent
LANGUAGE: English
ENTRY DATE: Entered STN: 21 Feb 2002
Last Updated on STN: 26 Feb 2002
AB A class of cationic, ***polyphemusin*** -like peptides having ***antimicrobial*** activity is provided. Examples of such peptides include FRWCFRVCYKGRCRYKCR (SEQ ID NO:3), RRWCFRVCYKGFCRYKCR (SEQ ID NO:4), and RRWCFRVCYRGRFCYRKCR (SEQ ID NO:11). Also provided are methods for inhibiting the growth of microbes such as bacteria, yeast and viruses utilizing the peptides of the invention. The peptides are particularly useful for inhibiting endotoxemia in a subject.

L4 ANSWER 4 OF 25 MEDLINE on STN DUPLICATE 1
ACCESSION NUMBER: 2001512030 MEDLINE
DOCUMENT NUMBER: 21443792 PubMed ID: 11473117
TITLE: Interaction of cationic antimicrobial peptides with model

membranes.
AUTHOR: Zhang L; Rozek A; Hancock R E
CORPORATE SOURCE: Department of Microbiology and Immunology, University of British Columbia, 300-6174 University Boulevard, Vancouver, British Columbia V6T 1Z3, Canada.
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2001 Sep 21) 276 (38) 35714-22.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200110
ENTRY DATE: Entered STN: 20010918
Last Updated on STN: 20030105
Entered Medline: 20011025

AB A series of natural and synthetic cationic ***antimicrobial*** peptides from various structural classes, including alpha-helical, beta-sheet, extended, and cyclic, were examined for their ability to interact with model membranes, assessing penetration of phospholipid monolayers and induction of lipid flip-flop, membrane leakiness, and peptide translocation across the bilayer of large unilamellar liposomes, at a range of peptide/lipid ratios. All peptides were able to penetrate into monolayers made with negatively charged phospholipids, but only two interacted weakly with neutral lipids. Peptide-mediated lipid flip-flop generally occurred at peptide concentrations that were 3- to 5-fold lower than those causing leakage of calcein across the membrane, regardless of peptide structure. With the exception of two alpha-helical peptides V681(n) and V25(p,) the extent of peptide-induced calcein release from large unilamellar liposomes was generally low at peptide/lipid molar ratios below 1:50. Peptide translocation across bilayers was found to be higher for the beta-sheet peptide ***polyphemusin*** , intermediate for alpha-helical peptides, and low for extended peptides. Overall, whereas all studied cationic ***antimicrobial*** peptides interacted with membranes, they were quite heterogeneous in their impact on these membranes.

L4 ANSWER 5 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:692451 CAPLUS
DOCUMENT NUMBER: 138:381923
TITLE: Importance of the intramolecular disulfide bridges in the biological activity of gomesin
AUTHOR(S): Fazio, Marcos A.; Daffre, Sirlei; Miranda, M. Teresa M.; Bulet, Philippe; Miranda, Antonio
CORPORATE SOURCE: Depto de Biofisica, UNIFESP, Sao Paulo, 04044-020, Brazil
SOURCE: Peptides: The Wave of the Future, Proceedings of the Second International and the Seventeenth American Peptide Symposium, San Diego, CA, United States, June 9-14, 2001 (2001), 495-496. Editor(s): Lebl, Michal; Houghten, Richard A. American Peptide Society: San Diego, Calif.
CODEN: 69DBAL; ISBN: 0-9715560-0-8
DOCUMENT TYPE: Conference
LANGUAGE: English

AB A study was conducted to det. the role of the disulfide bridges in the biol. activity of gomesin (Gm), a potent cationic ***antimicrobial*** peptide isolated from hemocytes of the tarantula spider, Acanthoscurria gomesiana. Gm contains two intramol. disulfide bridges, Cys2-15 and Cys6-11, a pyroglutamic acid as N-terminal residue and an amide in its C-terminal carboxyl group, showing sequence similarities to tachyplesin and ***polyphemusin*** from horseshoe crabs, androctonin from scorpions and protegrins from porcine leukocytes. The antibacterial and antifungal activities of Gm were detd. by a liq. growth inhibition assay against Micrococcus luteus A-270, Escherichia coli SBS-363 and Candida albicans. Results show that despite the fact that Gm analogs were less potent than the native mol. in terms of ***antimicrobial*** activity, they exhibited lower hemolytic activities than Gm. These results suggest that both disulfide bridges are important for the expression of Gm biol. activity and that there is some specificity of this ***antimicrobial*** peptide against certain microorganisms.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 6 OF 25 MEDLINE on STN DUPLICATE 2
ACCESSION NUMBER: 2001038222 MEDLINE
DOCUMENT NUMBER: 20517902 PubMed ID: 10942757

TITLE: Isolation and characterization of gomesin, an 18-residue cysteine-rich defense peptide from the spider Acanthoscurria gomesiana hemocytes with sequence similarities to horseshoe crab antimicrobial peptides of the tachyplesin family.
AUTHOR: Silva P I Jr; Daffre S; Bulet P
CORPORATE SOURCE: Laboratorio de Artropodes, Instituto Butantan, Avenue Vital Brazil, 1500, CEP 05503-900, Sao Paulo, Brazil.
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (2000 Oct 27) 275 (43) 33464-70.
Journal code: 2985121R. ISSN: 0021-9258.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-P82358
ENTRY MONTH: 200011
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20001124

AB We have purified a small size ***antimicrobial*** peptide, named gomesin, from the hemocytes of the unchallenged tarantula spider Acanthoscurria gomesiana. Gomesin has a molecular mass of 2270.4 Da, with 18 amino acids, including a pyroglutamic acid as the N terminus, a C-terminal arginine alpha-amide, and four cysteine residues forming two disulfide bridges. This peptide shows marked sequence similarities to ***antimicrobial*** peptides from other arthropods such as tachyplesin and ***polyphemusin*** from horseshoe crabs and androctonin from scorpions. Interestingly, it also shows sequence similarities to protegrins, ***antimicrobial*** peptides from porcine leukocytes. Gomesin strongly affects bacterial growth, as well as the development of filamentous fungi and yeast. In addition, we showed that gomesin affects the viability of the parasite Leishmania amazonensis.

L4 ANSWER 7 OF 25 MEDLINE on STN DUPLICATE 3
ACCESSION NUMBER: 2001084716 MEDLINE
DOCUMENT NUMBER: 20541409 PubMed ID: 11087404
TITLE: Interaction of polyphemusin I and structural analogs with bacterial membranes, lipopolysaccharide, and lipid monolayers.
AUTHOR: Zhang L; Scott M G; Yan H; Mayer L D; Hancock R E
CORPORATE SOURCE: Department of Microbiology and Immunology, University of British Columbia, #300-6174 University Boulevard, Vancouver, British Columbia, Canada V6T 1Z3.
SOURCE: BIOCHEMISTRY, (2000 Nov 28) 39 (47) 14504-14.
Journal code: 0370623. ISSN: 0006-2960.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200101
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20010118

AB Three structural variants (PV5, PV7, and PV8) of the horseshoe crab cationic ***antimicrobial*** peptide ***polyphemusin*** I were designed with improved amphipathic profiles. Circular dichroism spectroscopy analysis indicated that in phosphate buffer ***polyphemusin*** I, PV7, and PV8 displayed the spectrum of a type II beta-turn-rich structure, but, like ***polyphemusin*** I, all three variants adopted a typical beta-sheet structure in an anionic lipid environment. Both ***polyphemusin*** I and variants were potent broad spectrum ***antimicrobials*** that were clearly bactericidal at their minimal inhibitory concentrations. The variants were moderately less active in vitro but more effective in animal models. Moreover, these variants exhibited delayed bacterial killing, whereas ***polyphemusin*** I killed Escherichia coli UB1005 within 5 min at 2.5 microg/mL. All the peptides showed similar abilities to bind to bacterial lipopolysaccharide (LPS) and permeabilize bacterial outer membranes. Consistent with this was the observation that all peptides significantly inhibited cytokine production by LPS-stimulated macrophages and penetrated polyanionic LPS monolayers to similar extents. None of the peptides had affinity for neutral lipids as evident from both tryptophan fluorescence spectroscopy and Langmuir monolayer analysis. As compared to ***polyphemusin*** I, all variants showed reduced ability to interact with anionic lipids, and the hemolytic activity of the variants was decreased by 2-4-fold. In contrast, ***polyphemusin*** I efficiently depolarized the cytoplasmic

membrane of E. coli, as assessed using a membrane potential sensitive fluorescent dye 3,3-dipropylthiacarbocyanine (diSC(3)5) assay, but the variants showed a substantially delayed and decreased depolarizing ability. The coincident assessment of cell viability indicated that depolarization of the bacterial cytoplasmic membrane potential by ***polyphemusin*** I occurred prior to lethal damage to cells. Our data suggest that increase of amphipathicity of beta-sheet ***polyphemusin*** I generally resulted in variants with decreased activity for membranes. Interestingly, all variants showed an improved ability to protect mice both against infection by Pseudomonas aeruginosa and from endotoxaemia.

L4 ANSWER 8 OF 25 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
ACCESSION NUMBER: 2000:25000 SCISEARCH
THE GENUINE ARTICLE: 269TT
TITLE: Why and how are peptide-lipid interactions utilized for self-defense? Magainins and tachyplesins as archetypes
AUTHOR: Matsuzaki K (Reprint)
CORPORATE SOURCE: KYOTO UNIV, GRAD SCH BIOSTUDIES, SAKYO KU, YOSHIDA SHIMOADACHI CHO 46-29, KYOTO 6068501, JAPAN (Reprint)
COUNTRY OF AUTHOR: JAPAN
SOURCE: BIOCHIMICA ET BIOPHYSICA ACTA-BIOMEMBRANES, (15 DEC 1999) Vol. 1462, No. 1-2, pp. 1-10.
Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS.
ISSN: 0005-2736.
DOCUMENT TYPE: General Review; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 75
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Animals as well as plants defend themselves against invading pathogenic microorganisms utilizing cationic antimicrobial peptides, which rapidly kill various microbes without exerting toxicity against the host. Physicochemical peptide-lipid interactions provide attractive mechanisms for innate immunity. Many of these peptides form cationic amphipathic secondary structures, typically alpha-helices and beta-sheets, which can selectively interact with anionic bacterial membranes by the aid of electrostatic interactions. Rapid, peptide-induced membrane permeabilization is an effective mechanism of antimicrobial action. This review article summarizes interactions with lipid bilayers of magainins (alpha-helix) and tachyplesins (beta-sheet) discovered in frog skin and horseshoe crab hemolymph, respectively, as archetypes, emphasizing that the mode of interaction is strongly dependent on the physicochemical properties not only of the peptide, but also of the target membrane. (C) 1999 Elsevier Science B.V. All rights reserved.

L4 ANSWER 9 OF 25 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
ACCESSION NUMBER: 1998:291633 SCISEARCH
THE GENUINE ARTICLE: ZG262
TITLE: Effective lowly cytotoxic analogs of an HIV-cell fusion inhibitor, T22 ([Tyr(5,12),Lys(7)]-polyphemusin II)
AUTHOR: Tamamura H (Reprint); Arakaki R; Funakoshi H; Imai M; Otaka A; Ibuka T; Nakashima H; Murakami T; Waki M; Matsumoto A; Yamamoto N; Fujii N
CORPORATE SOURCE: KYOTO UNIV, GRAD SCH PHARMACEUT SCI, SAKYO KU, KYOTO 60601, JAPAN (Reprint); KAGOSHIMA UNIV, SCH DENT, DEPT IMMUNOL & MICROBIOL, KAGOSHIMA 890, JAPAN; TOKYO MED & DENT UNIV, SCH MED, BUNKYO KU, TOKYO 113, JAPAN; SEIKAGAKU CORP, CHUO KU, TOKYO 103, JAPAN
COUNTRY OF AUTHOR: JAPAN
SOURCE: BIOORGANIC & MEDICINAL CHEMISTRY, (FEB 1998) Vol. 6, No. 2, pp. 231-238.
Publisher: PERGAMON-ELSEVIER SCIENCE LTD, THE BOULEVARD, LANGFORD LANE, KIDLINGTON, OXFORD, ENGLAND OX5 1GB.
ISSN: 0968-0896.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 25
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB A tachyplesin peptide analog, T22 ([Tyr(5,12), Lys(7)]-polyphemusin II), and its shortened congener, TW70 (des-[Cys(8,13), Tyr(9,12)]-[D-Lys(10), Pro(11)]-T22) have strong anti-human immunodeficiency virus (HIV) activity, comparable to that of 3'-azido-2',3'-dideoxythymidine (AZT). T22 and TW70 are extremely basic peptides, containing 5 Arg residues and 3 Lys residues. The number of positive charges might be related in part to high collateral

cytotoxicities of T22 and TW70. Here we have synthesized several analogs, in which the number of positive charges has been reduced through amino acid substitutions using Glu or L-citrulline. As a result, several effective compounds have been found which possess higher selectivity indexes (SIs, 50% cytotoxic concentration/50% effective concentration) than those of T22 and TW70. Higher SIs were attributed mainly to a decrease in cytotoxicity. (C) 1998 Elsevier Science Ltd. All rights reserved.

L4 ANSWER 10 OF 25 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
ACCESSION NUMBER: 97:295545 SCISEARCH
THE GENUINE ARTICLE: WT164
TITLE: Conformations and orientations of aromatic amino acid residues of tachyplesin I in phospholipid membranes
AUTHOR: Oishi O; Yamashita S; Nishimoto E; Lee S (Reprint); Sugihara G; Ohno M
CORPORATE SOURCE: FUKUOKA UNIV, FAC SCI, DEPT CHEM, JONAN KU, FUKUOKA 81480, JAPAN (Reprint); FUKUOKA UNIV, FAC SCI, DEPT CHEM, JONAN KU, FUKUOKA 81480, JAPAN; KYUSHU UNIV, FAC AGR, DEPT FORESTRY, HIGASHI KU, FUKUOKA 812, JAPAN; KYUSHU UNIV, FAC SCI, DEPT CHEM, BIOCHEM LAB, HIGASHI KU, FUKUOKA 812, JAPAN
COUNTRY OF AUTHOR: JAPAN
SOURCE: BIOCHEMISTRY, (8 APR 1997) Vol. 36, No. 14, pp. 4352-4359. Publisher: AMER CHEMICAL SOC, 1155 16TH ST, NW, WASHINGTON, DC 20036. ISSN: 0006-2960.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: English
REFERENCE COUNT: 29
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Tachyplesin I, an antibacterial and antiviral heptadecapeptide from the hemocyte debris of Tachypleus tridentatus, contains four aromatic amino acids (Trp(2), Phe(4), Tyr(8), and Tyr(13)) which have been shown to be crucial for activity. In order to investigate conformations and orientations of the aromatic amino acid residues of tachyplesin I in lipid bilayers, its analogs, [Phe(8)]- and/or [Phe(13)]-tachyplesin(s) I in which Tyr(8) and Tyr(13) are replaced by Phe, were synthesized. Circular dichroism spectral studies showed that three peptides are considerably different in conformation in aqueous solution at pH 8.0 whereas they take similar conformations in the presence of neutral egg yolk phosphatidylcholine (EYPC) liposomes. Energy transfer kinetics showed that the distances of Trp(2)-Tyr(8) and Trp(2)-Tyr(13) are 16 Angstrom (max of 18.3 Angstrom, min of 15.1 Angstrom) and 18 Angstrom (max of 20.2 Angstrom, min of 16.6 Angstrom) in buffer but are 12 Angstrom (max of 15.2 Angstrom, min of 8.6 Angstrom) and 18 Angstrom (max of 22.9 Angstrom, min of 12.9 Angstrom), respectively, in the presence of acidic EYPC/EYPG (3:1) liposomes. Decay kinetics for Trp(2) fluorescence indicated that Trp(2) takes at least three conformations in buffer and in acidic liposomes where fractions of three Trp(2) conformers vary by changing the medium from buffer to acidic liposomes. Although tachyplesin I is not in amphiphilic structure in buffer in spite of its rigid antiparallel beta-conformation, its interaction with lipid bilayers appears to induce amphiphilic structure via minor alteration of peptide backbone and side chain orientations, resulting in shortening the distance of Trp(2)-Tyr(8).

L4 ANSWER 11 OF 25 MEDLINE on STN DUPLICATE 4
ACCESSION NUMBER: 97430289 MEDLINE
DOCUMENT NUMBER: 97430289 PubMed ID: 9284563
TITLE: Recombinant expression of the ***antimicrobial*** peptide ***polyphemusin*** and its activity against the protozoan oyster pathogen Perkinsus marinus.
AUTHOR: Pierce J C; Maloy W L; Salvador L; Dungan C F
CORPORATE SOURCE: Department of Biological Sciences, Philidelphia College of Pharmacy and Science, Pennsylvania 19104-4495, USA.. j.pierce@pcps.edu
SOURCE: MOLECULAR MARINE BIOLOGY AND BIOTECHNOLOGY, (1997 Sep) 6 (3) 248-59. Journal code: 9205135. ISSN: 1053-6426.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199710
ENTRY DATE: Entered STN: 19971021
Last Updated on STN: 20021218

Entered Medline: 19971003

AB ***Polyphemusin*** is a broad-spectrum ***antimicrobial*** peptide isolated from hemocytes of the North American horseshoe crab Limulus polyphemus. To date the ***polyphemusin*** used for scientific analyses has been purified from the natural materials or obtained by chemical synthesis. We report here the recombinant expression in Escherichia coli, and subsequent purification, of a ***polyphemusin*** analogue (rLim1). To prevent toxicity of the ***antimicrobial*** peptide in the highly susceptible E. coli host, we used a carboxy-terminal fusion protein cloning strategy provided by a maltose-binding protein (MBP) gene fusion system (New England Biolabs). ***Antimicrobial*** activity of recombinant ***polyphemusin*** was similar to that seen with amidated native ***polyphemusin*** peptide. When rLim1 was tested for antibiotic activity against the apicomplexan protozoan oyster pathogen Perkinsus marinus, complete inhibition was observed at 12 micrograms/ml, and partial inhibition at 8 micrograms/ml.

L4 ANSWER 12 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1996:304235 CAPLUS
DOCUMENT NUMBER: 124:334852
TITLE: Manufacture of antimicrobial defensive amphiphilic peptides with proteinase-deficient hosts as peptides or as fusion proteins
INVENTOR(S): Williams, Jon I.; Pierce, James C.; Anderson, G. Mark; Kari, Prasad
PATENT ASSIGNEE(S): Magainin Pharmaceuticals, Inc., USA
SOURCE: PCT Int. Appl., 103 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9604373	A2	19960215	WO 1995-US10219	19950726
WO 9604373	A3	19960321		
W: AU, CA, JP, KR				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 5589364	A	19961231	US 1994-282030	19940729
AU 9533215	A1	19960304	AU 1995-33215	19950726

PRIORITY APPLN. INFO.: US 1994-282030 19940729
WO 1995-US10219 19950726

AB Methods of manufg. amphiphilic peptides for therapeutic use using proteinase-deficient expression hosts are described. The peptides may be manuf. by direct expression of a gene for an amphiphilic peptide in a protease-deficient microbial host transformed with an appropriate expression vector. Alternatively, protease-deficient Escherichia coli K-12 is transformed with a vector encoding a cleavable fusion protein of a carbohydrate-binding protein and the amphiphilic peptide. The affinity purified fusion protein is then cleaved to release the amphiphilic peptide. The biol. active amphiphilic peptide can be further treated chem. or enzymically to obtain a chem. distinct amphiphilic peptide with improved biol. and therapeutic properties. Analogs of defensin-like peptides were synthesized and tested for antimicrobial activity and the most effective analog identified. A synthetic gene for this peptide (MSI-556) was constructed and used to create a chimeric gene for a fusion protein with maltose-binding protein using the pMAL-2c expression system. Induction of the gene led to the cells accumulating the fusion protein to 10-20% of observable cellular protein. The fusion protein was purified by affinity chromatog. on amylose and MSI-556 released by CNBr cleavage and purified by HPLC.

L4 ANSWER 13 OF 25 MEDLINE on STN DUPLICATE 5
ACCESSION NUMBER: 97094646 MEDLINE
DOCUMENT NUMBER: 97094646 PubMed ID: 8939880
TITLE: Characterization of novel cysteine-rich antimicrobial peptides from scorpion blood.
AUTHOR: Ehret-Sabatier L; Loew D; Goyffon M; Fehlbaum P; Hoffmann J A; van Dorsselaer A; Bulet P
CORPORATE SOURCE: Institut de Biologie Moleculaire et Cellulaire, UPR 9022, CNRS, "Reponse Immunitaire et Developpement chez les Insectes," 15, rue Rene Descartes, 67084 Strasbourg Cedex, France.
SOURCE: JOURNAL OF BIOLOGICAL CHEMISTRY, (1996 Nov 22) 271 (47) 29537-44.
Journal code: 2985121R. ISSN: 0021-9258.

PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199701
ENTRY DATE: Entered STN: 19970128
Last Updated on STN: 20000303
Entered Medline: 19970113

AB We have isolated, from the hemolymph of unchallenged scorpions of the species Androctonus australis, three distinct ***antimicrobial*** peptides, which we have fully characterized by Edman degradation, electrospray ionization mass spectrometry, and matrix-assisted laser desorption/ionization mass spectrometry. Two are novel molecules: (i) androctonin, a 25-residue peptide with two disulfide bridges, active against both bacteria (Gram-positive and Gram-negative) and fungi and showing marked sequence homology to tachyplesins and ***polyphemusins*** from horseshoe crabs; and (ii) buthinin, a 34-residue antibacterial (Gram-positive and Gram-negative) peptide with three disulfide bridges. The third peptide contains 37 residues and three disulfide bridges and clearly belongs to the family of anti-Gram-positive insect defensins. We have synthesized androctonin and explored its activity spectrum and mode of action.

L4 ANSWER 14 OF 25 BIOSIS COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 1995:148868 BIOSIS
DOCUMENT NUMBER: PREV199598163168
TITLE: Recombinant expression and purification of the ***antimicrobial*** peptide ***polyphemusin*** from the horseshoe crab Limulus polyphemus.
AUTHOR(S): Pierce, James C.
CORPORATE SOURCE: Dep. Natural Sci. Mathematics, Richard Stockton Coll. New Jersey, Pomona, NJ 08240, USA
SOURCE: Journal of Cellular Biochemistry Supplement, (1995) Vol. 0, No. 19B, pp. 341.
Meeting Info.: Keystone Symposium on Molecular Approaches to Marine Ecology and Evolution. Santa Fe, New Mexico, USA. March 5-11, 1995.
ISSN: 0733-1959.
DOCUMENT TYPE: Conference; (Meeting)
Conference; Abstract; (Meeting Abstract)
Conference; (Meeting Poster)
LANGUAGE: English
ENTRY DATE: Entered STN: 3 Apr 1995
Last Updated on STN: 3 Apr 1995

L4 ANSWER 15 OF 25 MEDLINE on STN DUPLICATE 6
ACCESSION NUMBER: 95201165 MEDLINE
DOCUMENT NUMBER: 95201165 PubMed ID: 7893944
TITLE: Structure-activity studies on magainins and other host defense peptides.
AUTHOR: Maloy W L; Kari U P
CORPORATE SOURCE: Magainin Pharmaceuticals, Inc., Plymouth Meeting, Pennsylvania 19462.
SOURCE: BIOPOLYMERS, (1995) 37 (2) 105-22. Ref: 118
Journal code: 0372525. ISSN: 0006-3525.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, ACADEMIC)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-Z27247
ENTRY MONTH: 199504
ENTRY DATE: Entered STN: 19950504
Last Updated on STN: 19950504
Entered Medline: 19950427

AB Host defense peptides are widely distributed in nature, being found in species from bacteria to humans. The structures of these peptides from insects, horseshoe crabs, frogs, and mammals are known to have the common features of a net cationic charge due to the presence of multiple Arg and Lys residues and in most cases the ability to form amphipathic structures. These properties are important for the mechanism of action that is thought to be a nonreceptor-mediated interaction with the anionic phospholipids of the target cell followed by incorporation into the membrane and disruption of the membrane structure. Host defense peptides have been shown to have broad spectrum ***antimicrobial*** activity, able to kill most strains of bacteria as well as some fungi, protozoa, and in addition, many types

of tumor cells. Specificity for pathogenic cells over host cells is thought to be due to the composition of the cell membranes, with an increased proportion of anionic phospholipids making the pathogen more susceptible and the presence of cholesterol making the host membranes more resistant. Structure-activity relationship studies have been performed on insect cecropins and apidaecins, horseshoe crab tachyplesins and ***polyphemusins*** , and the frog magainins, CPFs (caerulein precursor fragments) and PGLa. In general, changes that increased the basicity and stabilized the amphipathic structure have increased the ***antimicrobial*** activity; however, as the peptides become more hydrophobic the degree of specificity decreases. One magainin-2 analogue, MSI-78, has been developed by Magainin Pharmaceuticals as a topical antiinfective and is presently in clinical trials for the treatment of infected diabetic foot ulcers.

L4 ANSWER 16 OF 25 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
ACCESSION NUMBER: 95:45134 SCISEARCH
THE GENUINE ARTICLE: PZ209
TITLE: MOLECULAR-PARAMETERS FOR THE ANTI-HUMAN-IMMUNODEFICIENCY-VIRUS ACTIVITY OF T22 ([TYR(5,12),LYS(7)]-POLYPHEMUSIN-II)
AUTHOR: OTAKA A; TAMAMURA H; TERAKAWA Y; MASUDA M; KODE T; MURAKAMI T; NAKASHIMA H; MATSUZAKI K; MIYAJIMA K; IBUKA T; WAKI M; MATSUMOTO A; YAMAMOTO N; FUJII N (Reprint)
CORPORATE SOURCE: KYOTO UNIV, FAC PHARMACEUT SCI, SAKYO KU, KYOTO 606, JAPAN (Reprint); KYOTO UNIV, FAC PHARMACEUT SCI, SAKYO KU, KYOTO 606, JAPAN; TOKYO MED & DENT UNIV, SCH MED, DEPT MICROBIOL, BUNKYO KU, TOKYO 113, JAPAN; YAMANASHI MED UNIV, DEPT MICROBIOL, TAMAHO, YAMANASHI 40938, JAPAN; SEIKAGAKU CORP, CHUO KU, TOKYO 103, JAPAN
COUNTRY OF AUTHOR: JAPAN
SOURCE: BIOLOGICAL & PHARMACEUTICAL BULLETIN, (DEC 1994) Vol. 17, No. 12, pp. 1669-1672.
ISSN: 0918-6158.
DOCUMENT TYPE: Note; Journal
FILE SEGMENT: LIFE
LANGUAGE: ENGLISH
REFERENCE COUNT: 24
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS
AB T22 ([Tyr(5.12), Lys(7)]-polyphemusin II) was found to exhibit strong anti-human immunodeficiency virus (HIV) activity and exert its effects on a virus-cell fusion process. In the present study, the all-D enantiomer of T22 and its related compounds were synthesized to examine the molecular parameters required for the interaction of T22 with membrane components of cells or viruses in order to exert this anti-HN activity. The anti-HIV activity of these analogs was investigated in comparison with their membrane permeability with aspect to large unilamellar vesicles (LUVs). The all-D enantiomer of T22 exhibited a 20-fold lower anti-HIV activity compared with T22, whereas they both showed the same membrane permeability. No positive correlation between anti-HIV activity and membrane permeability was observed. These results suggest that the anti-HIV activity of T22 is mediated through the interaction with chiral component(s) of the cell or virus.

L4 ANSWER 17 OF 25 MEDLINE on STN DUPLICATE 7
ACCESSION NUMBER: 95285728 MEDLINE
DOCUMENT NUMBER: 95285728 PubMed ID: 7768150
TITLE: Structure-function relationships of tachyplesins and their analogues.
AUTHOR: Iwanaga S; Muta T; Shigenaga T; Seki N; Kawano K; Katsu T; Kawabata S
CORPORATE SOURCE: Department of Molecular Biology, Graduate School of Medical Science, Kyushu University, Fukuoka, Japan.
SOURCE: CIBA FOUNDATION SYMPOSIUM, (1994) 186 160-74; discussion 174-5. Ref: 40
Journal code: 0356636. ISSN: 0300-5208.
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199507
ENTRY DATE: Entered STN: 19950713
Last Updated on STN: 19950713
Entered Medline: 19950705
AB Haemocytes of the horseshoe crab (Limulus) contain a new family of arthropodous peptide antibiotics, termed the tachyplesin family. These

cationic peptides are composed of 17-18 amino acid residues with a C-terminal arginine alpha-amide. Tachyplesin I takes on a fairly rigid conformation constrained by two disulphide bridges and adopts a conformation consisting of an antiparallel beta-sheet connected by a beta-turn. Isopeptides of tachyplesin I with amino acid replacements, tachyplesins II and III, and ***polyphemusins*** I and II have also been found in the haemocytes of the South-East Asian species and Limulus polyphemus. These peptides are present in abundance in the small granules of the haemocytes and inhibit strongly the growth of not only Gram-negative and Gram-positive bacteria but also fungi such as Candida albicans. Tachyplesin exists in the prepro form consisting of 77 residues; this precursor is probably processed by intracellular proteases and an amidation enzyme before incorporation into the small granules of the haemocytes. We examined the mode of action of tachyplesin I on biomembranes, comparing it with that of gramicidin S. Tachyplesin caused an efflux of K+ from Staphylococcus aureus and Escherichia coli cells similar to that caused by gramicidin S. Another ***antimicrobial*** substance, anti-LPS factor, has been isolated from haemocytes.

L4 ANSWER 18 OF 25 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
ACCESSION NUMBER: 93:331726 SCISEARCH
THE GENUINE ARTICLE: LC802
TITLE: A COMPARATIVE-STUDY OF THE SOLUTION STRUCTURES OF TACHYPLESIN-I AND A NOVEL ANTI-HIV SYNTHETIC PEPTIDE, T22 ([TYR(5,12), LYS(7)]-POLYPHEMUSIN-II), DETERMINED BY NUCLEAR-MAGNETIC-RESONANCE
AUTHOR: TAMAMURA H; KURODA M; MASUDA M; OTAKA A; FUNAKOSHI S; NAKASHIMA H; YAMAMOTO N; WAKI M; MATSUMOTO A; LANCELIN J M; KOHDA D; TATE S; INAGAKI F; FUJII N (Reprint)
CORPORATE SOURCE: KYOTO UNIV, FAC PHARMACEUT SCI, SAKYO KU, KYOTO 606, JAPAN (Reprint); TOKYO MED & DENT UNIV, SCH MED, DEPT MICROBIOL, TOKYO 113, JAPAN; SEIKAGAKU CORP, TOKYO, JAPAN; TOKYO METROPOLITAN INST MED SCI, DEPT MOLEC PHYSIOL, TOKYO 113, JAPAN
COUNTRY OF AUTHOR: JAPAN
SOURCE: BIOCHIMICA ET BIOPHYSICA ACTA, (13 MAY 1993) Vol. 1163, No. 2, pp. 209-216.
ISSN: 0006-3002.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: ENGLISH
REFERENCE COUNT: 23
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS
AB The solution structure of tachyplesin I, which was isolated from membrane acid extracts of the hemocytes from the Japanese horseshoe crab (Tachypleus tridentatus), was determined by nuclear magnetic resonance (NMR) and distance geometry calculation. Tachyplesin I takes an antiparallel beta-sheet structure with a type-II beta-turn. Recently, among more than 20 synthetic peptides associated with tachyplesin and its isopeptide (polyphemusin), we found that a novel compound, which we designated as T22 ([Tyr5,12, Lys7]-polyphemusin II), strongly inhibited the human immunodeficiency virus (HIV)-1-induced cytopathic effect and viral antigen expression. The solution structure of T22 was investigated using NMR, and its secondary structure was confirmed to be similar to that of tachyplesin I. The anti-parallel beta-sheet structure and the several amino-acid side chains on the plane of the beta-sheet of T22 are thought to be associated with the expression of anti-HIV activity.

L4 ANSWER 19 OF 25 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
ACCESSION NUMBER: 92:187323 SCISEARCH
THE GENUINE ARTICLE: HK524
TITLE: BINDING OF TACHYPLESIN-I TO DNA REVEALED BY FOOTPRINTING ANALYSIS - SIGNIFICANT CONTRIBUTION OF SECONDARY STRUCTURE TO DNA-BINDING AND IMPLICATION FOR BIOLOGICAL ACTION
AUTHOR: YONEZAWA A; KUWAHARA J; FUJII N; SUGIURA Y (Reprint)
CORPORATE SOURCE: KYOTO UNIV, INST CHEM RES, UJI, KYOTO 611, JAPAN; KYOTO UNIV, FAC PHARMACEUT SCI, KYOTO 606, JAPAN
COUNTRY OF AUTHOR: JAPAN
SOURCE: BIOCHEMISTRY, (24 MAR 1992) Vol. 31, No. 11, pp. 2998-3004
ISSN: 0006-2960.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: ENGLISH
REFERENCE COUNT: 37
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS
AB In view of the cationic amphipathic structure of tachyplesin I and

antiparallel beta-sheet as a general DNA binding motif, DNA binding of the antimicrobial peptide has been examined. Several footprinting-like techniques using DNase I protection, dimethyl sulfate protection, and bleomycin- (BLM-) induced DNA cleavage were applied in this study. Some distinct footprints with DNase I are detected, and also the sequence-specific cleavage mode of the BLM-Fe(II) complex clearly is altered in the presence of tachyplesin I. In addition, methylation of the N-7 residue of guanine situated in the DNA major groove is not entirely inhibited (or activated) by tachyplesin I. The results suggest that tachyplesin I interacts with the minor groove of DNA duplex. Disappearance of the footprints by dithiothreitol-treated tachyplesin I and Ala-tachyplesin strongly suggests a significant contribution of secondary structure containing an antiparallel beta-sheet to the DNA binding of tachyplesin I. This is the first report on DNA interaction with a small peptide which contains a unique antiparallel beta-sheet structure. The mechanism for antimicrobial action of tachyplesin I has also been inferred.

L4 ANSWER 20 OF 25 MEDLINE on STN DUPLICATE 8
ACCESSION NUMBER: 92378241 MEDLINE
DOCUMENT NUMBER: 92378241 PubMed ID: 1510441
TITLE: Mechanisms of antibacterial action of tachyplesins and ***polyphemusins*** , a group of ***antimicrobial*** peptides isolated from horseshoe crab hemocytes.
AUTHOR: Ohta M; Ito H; Masuda K; Tanaka S; Arakawa Y; Wacharotayankun R; Kato N
CORPORATE SOURCE: Department of Bacteriology, Nagoya University School of Medicine, Japan.
SOURCE: ANTIMICROBIAL AGENTS AND CHEMOTHERAPY, (1992 Jul) 36 (7) 1460-5.
Journal code: 0315061. ISSN: 0066-4804.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199209
ENTRY DATE: Entered STN: 19921009
Last Updated on STN: 19970203
Entered Medline: 19920922
AB Tachyplesins I and II and polyphemusins I and II, cationic peptides isolated from the hemocytes of horseshoe crabs, show bactericidal activities with similar efficiencies for both gram-negative and gram-positive bacteria. Tachyplesin I inhibited bacterial growth irreversibly within 40 min. A subinhibitory concentration of tachyplesin I sensitized gram-negative bacteria to the bactericidal actions of novobiocin and nalidixic acid, although polymyxin B-resistant strains which have altered lipopolysaccharides were susceptible to tachyplesin I. This implies that tachyplesin permeabilizes the outer membrane and that the likely target of its action is outer membrane constituents other than lipopolysaccharides. On the other hand, a defensin-susceptible phoP strain of Salmonella typhimurium was also susceptible to tachyplesin I. Tachyplesin I rapidly depolarized the inverted inner-membrane vesicles of Escherichia coli. These results suggest that depolarization of the cytoplasmic membrane, preceded by the permeabilization of the outer membrane for gram-negative bacteria, is associated with tachyplesin-mediated bactericidal activity. The similarity between the actions of tachyplesin and those of defensin was discussed.

L4 ANSWER 21 OF 25 MEDLINE on STN DUPLICATE 9
ACCESSION NUMBER: 93112056 MEDLINE
DOCUMENT NUMBER: 93112056 PubMed ID: 1472056
TITLE: A novel anti-HIV synthetic peptide, T-22 ([Tyr5,12,Lys7]-polyphemusin II).
AUTHOR: Masuda M; Nakashima H; Ueda T; Naba H; Ikoma R; Otaka A; Terakawa Y; Tamamura H; Ibuka T; Murakami T; +
CORPORATE SOURCE: Faculty of Pharmaceutical Sciences, Kyoto University, Japan.
SOURCE: BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, (1992 Dec 15) 189 (2) 845-50.
Journal code: 0372516. ISSN: 0006-291X.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals; AIDS
ENTRY MONTH: 199301
ENTRY DATE: Entered STN: 19930212
Last Updated on STN: 19970203

Entered Medline: 19930128

AB Tachyplesin and ***polyphemusin*** are ***antimicrobial*** peptides recently isolated from the hemocytes of horseshoe crabs (Tachypleus tridentatus and Limulus polyphemus). We synthesized them and their analogs and examined their antiviral activity against human immunodeficiency virus (HIV) type 1 in vitro. The infection of human T cells with the virus was markedly inhibited by some of them at low concentrations. In this structure-activity study, we found that [Tyr5,12, Lys7]- ***polyphemusin*** II, which was designated as T22, had extremely high anti-HIV activity. Its 50% inhibitory concentration (EC50) was 0.008 micrograms/ml, while its 50% cytotoxic concentration (CC50) was 54 micrograms/ml and these values were comparable to those of AZT. This result indicates that T22 would be a potential candidate for the therapy of HIV infection.

L4 ANSWER 22 OF 25 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
ACCESSION NUMBER: 91:648600 SCISEARCH
THE GENUINE ARTICLE: GR128
TITLE: DIRECT VIRUS INACTIVATION OF TACHYPLESIN-I AND ITS ISOPEPTIDES FROM HORSESHOE-CRAB HEMOCYTES
AUTHOR: MURAKAMI T (Reprint); NIWA M; TOKUNAGA F; MIYATA T; IWANAGA S
CORPORATE SOURCE: OSAKA CITY INST PUBL HLTH & ENVIRONM SCI, DEPT VIROL, 8-34 TOHJO CHO, TENNOJI KU, OSAKA 543, JAPAN (Reprint); OSAKA CITY UNIV, SCH MED, DEPT BACTERIOL, OSAKA 545, JAPAN; KYUSHU UNIV, FAC SCI, DEPT BIOL, FUKUOKA 812, JAPAN
COUNTRY OF AUTHOR: JAPAN
SOURCE: CHEMOTHERAPY, (1991) Vol. 37, No. 5, pp. 327-334.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: ENGLISH
REFERENCE COUNT: 21
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Direct virus inactivation of tachyplesin I and related isopeptides, which are antimicrobial peptides isolated from the hemocytes of the horseshoe crab (Tachypleus tridentatus and Limulus polyphemus), was examined against several viruses. Vesicular stomatitis virus (VSV) was inactivated by incubation with tachyplesin I and its isopeptides. Influenza A (H1N1) virus was slightly inactivated by tachyplesin I, whereas herpes simplex virus 1 and 2, adenovirus 1, reovirus 2 and poliovirus 1 were resistant to inactivation. The inactivation of VSV by tachyplesin I depended on the concentration, the time and the temperature of incubation. Pretreatment of tachyplesin I with trypsin or lipopolysaccharide of gram-negative bacteria entirely abolished the antiviral activity. Electron microscopy of VSV treated with tachyplesin I showed naked and damaged virions. These data suggest that tachyplesin I directly inactivates the VSV by destroying its envelope subunits.

L4 ANSWER 23 OF 25 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1993:405155 CAPLUS
DOCUMENT NUMBER: 119:5155
TITLE: Antimicrobial peptides, tachyplesins isolated from hemocytes of invertebrates
AUTHOR(S): Iwanaga, Sadaaki
CORPORATE SOURCE: Fac. Sci., Kyushu Univ., Fukuoka, 812, Japan
SOURCE: Ikagaku Oyo Kenkyu Zaidan Kenkyu Hokoku (1991), 10, 174-9
CODEN: IOKHEP; ISSN: 0914-5117
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Japanese

AB The isolation, structural detn., and uses of tachyplesin and ***polyphemusin*** ***antimicrobial*** peptides are reviewed with 12 refs.

L4 ANSWER 24 OF 25 MEDLINE on STN DUPLICATE 10
ACCESSION NUMBER: 90110066 MEDLINE
DOCUMENT NUMBER: 90110066 PubMed ID: 2514185
TITLE: ***Antimicrobial*** peptides, isolated from horseshoe crab hemocytes, tachyplesin II, and ***polyphemusins*** I and II: chemical structures and biological activity.
AUTHOR: Miyata T; Tokunaga F; Yoneya T; Yoshikawa K; Iwanaga S; Niwa M; Takao T; Shimonishi Y
CORPORATE SOURCE: Department of Biology, Faculty of Science, Kyushu University, Fukuoka.
SOURCE: JOURNAL OF BIOCHEMISTRY, (1989 Oct) 106 (4) 663-8.
Journal code: 0376600. ISSN: 0021-924X.
PUB. COUNTRY: Japan

DQCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199002
ENTRY DATE: Entered STN: 19900328
Last Updated on STN: 19900328
Entered Medline: 19900222

AB Tachyplesin is an ***antimicrobial*** peptide recently found in the acid extract of hemocytes from the Japanese horseshoe crab (Tachypleus tridentatus) [Nakamura, T. et al. (1988) J. Biol. Chem. 263, 16709-16713]. In our continuing studies on the peptide, we have found an isopeptide, tachyplesin II, and also ***polyphemusins*** I and II in hemocytes of the American horseshoe crab (Limulus polyphemus). The complete primary structures of these peptides, which are very similar to that of the previously isolated peptide, now named tachyplesin I, were determined to be as follows: (Table: see text). The isopeptide, tachyplesin II, consists of 17 residues with a COOH-terminal arginine alpha-amide. On the other hand, both ***polyphemusins*** I and II were found to contain 18 residues due to an additional Arg residue at the NH2-terminal end as well as a COOH-terminal arginine alpha-amide. The disulfide linkages for ***polyphemusin*** I consisted of two bridges between Cys-4 and Cys-17 and between Cys-8 and Cys-13, which was identical to in the case of tachyplesin I. Moreover, all of these peptides inhibited the growth of not only Gram-negative and -positive bacteria but also fungi, such as Candida albicans M9. Furthermore, complex formation between these peptides and bacterial lipopolysaccharides was also observed in a double diffusion test. These results suggest that tachyplesins and ***polyphemusins*** are probably located in the hemocyte membrane, where they act on ***antimicrobial*** peptides as a self-defense mechanism in the horseshoe crab against invading microorganisms.

L4 ANSWER 25 OF 25 SCISEARCH COPYRIGHT 2004 THOMSON ISI on STN
ACCESSION NUMBER: 89:528550 SCISEARCH
THE GENUINE ARTICLE: AT832
TITLE: ***ANTIMICROBIAL*** PEPTIDES, ISOLATED FROM HORSESHOE-CRAB HEMOCYTES, TACHYPLESIN-II, AND ***POLYPHEMUSIN*** -I AND ***POLYPHEMUSIN*** -II - CHEMICAL STRUCTURES AND BIOLOGICAL-ACTIVITY
AUTHOR: MIYATA T; TOKUNAGA F; YONEYA T; YOSHIKAWA K; IWANAGA S (Reprint); NIWA M; TAKAO T; SHIMONISHI Y
CORPORATE SOURCE: KYUSHU UNIV 33, FAC SCI, DEPT BIOL, HIGASHI KU, FUKUOKA 812, JAPAN; KYUSHU UNIV 33, GRAD SCH MED SCI, DEPT MOLEC BIOL, HIGASHI KU, FUKUOKA 812, JAPAN; OSAKA CITY UNIV, SCH MED, DEPT BACTERIOL, ABENO KU, OSAKA 545, JAPAN; OSAKA UNIV, INST MED RES, SUITA, OSAKA 565, JAPAN
COUNTRY OF AUTHOR: JAPAN
SOURCE: JOURNAL OF BIOCHEMISTRY, (1989) Vol. 106, No. 4, pp. 663-668.
DOCUMENT TYPE: Article; Journal
FILE SEGMENT: LIFE
LANGUAGE: ENGLISH
REFERENCE COUNT: 18

=> s hancock r?/au
L5 3569 HANCOCK R?/AU

=> s zhang l?/au
L6 40345 ZHANG L?/AU

=> s l5 or l6
L7 43873 L5 OR L6

=> d his

(FILE 'HOME' ENTERED AT 16:47:39 ON 17 FEB 2004)

FILE 'MEDLINE, CAPLUS, BIOSIS, EMBASE, SCISEARCH, AGRICOLA' ENTERED AT 16:48:03 ON 17 FEB 2004
L1 207946 S ANTIMICROBIAL
L2 260 S POLYPHEMUSIN
L3 60 S L1 (P) L2
L4 25 DUPLICATE REMOVE L3 (35 DUPLICATES REMOVED)
L5 3569 S HANCOCK R?/AU
L6 40345 S ZHANG L?/AU
L7 43873 S L5 OR L6

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=> s l7 and l2
L8          15 L7 AND L2

=> duplicate remove l8
DUPLICATE PREFERENCE IS 'MEDLINE, CAPLUS, BIOSIS, EMBASE, SCISEARCH'
KEEP DUPLICATES FROM MORE THAN ONE FILE?  Y/(N):n
PROCESSING COMPLETED FOR L8
L9           7 DUPLICATE REMOVE L8 (8 DUPLICATES REMOVED)

=> s l9 not l4
L10          2 L9 NOT L4

=> d l10 1-2 ibib abs

L10  ANSWER 1 OF 2  BIOSIS  COPYRIGHT 2004 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER:   2000:349806  BIOSIS
DOCUMENT NUMBER:    PREV200000349806
TITLE:              Interaction of   ***polyphemusin***   I and its structural
                    analogs with LPS, bacterial membrane and lipid monolayers.
AUTHOR(S):            ***Zhang, L.***   [Reprint author]; Yan, H. [Reprint
                    author];   ***Hancock, R. E. W.***   [Reprint author]
CORPORATE SOURCE:   University of British Columbia, Vancouver, BC, Canada
SOURCE:             Abstracts of the General Meeting of the American Society
                    for Microbiology, (2000) Vol. 100, pp. 25. print.
                    Meeting Info.: 100th General Meeting of the American
                    Society for Microbiology. Los Angeles, California, USA. May
                    21-25, 2000. American Society for Microbiology.
                    ISSN: 1060-2011.
DOCUMENT TYPE:      Conference; (Meeting)
                    Conference; Abstract; (Meeting Abstract)
                    Conference; (Meeting Poster)
LANGUAGE:           English
ENTRY DATE:         Entered STN: 16 Aug 2000
                    Last Updated on STN: 7 Jan 2002

L10  ANSWER 2 OF 2  EMBASE  COPYRIGHT 2004 ELSEVIER INC. ALL RIGHTS RESERVED.
     on STN
ACCESSION NUMBER:   2000291667  EMBASE
TITLE:              Cationic antimicrobial peptides: Towards clinical
                    applications.
AUTHOR:               ***Hancock R.E.W.***
CORPORATE SOURCE:   R.E.W. Hancock, University of British Columbia, 6174
                    University Boulevard, Vancouver, BC V6T 1Z3, Canada
SOURCE:             Expert Opinion on Investigational Drugs, (2000) 9/8
                    (1723-1729).
                    Refs: 20
                    ISSN: 1354-3784  CODEN: EOIDER
COUNTRY:            United Kingdom
DOCUMENT TYPE:      Journal; General Review
FILE SEGMENT:       011     Otorhinolaryngology
                    030     Pharmacology
                    037     Drug Literature Index
LANGUAGE:           English
SUMMARY LANGUAGE:   English
AB   Cationic antimicrobial peptides are important components of the innate
     immune defences of all species of life. Variants of these natural
     molecules have a broad range of antibiotic, antifungal, antiviral and
     anti-endotoxic activity. Two of these cationic peptides have shown signs
     of efficacy in early clinical trials of oral mucositis and the
     sterilisation of central venous catheters, respectively and are currently
     proceeding through Phase III clinical trials. Thus, cationic antimicrobial
     peptides are currently being investigated as topical agents. In addition,
     the cationic protein rBPI 21 has recently completed Phase III clinical
     trials of parenteral use for meningococcaemia.


=> d his

     (FILE 'HOME' ENTERED AT 16:47:39 ON 17 FEB 2004)

     FILE 'MEDLINE, CAPLUS, BIOSIS, EMBASE, SCISEARCH, AGRICOLA' ENTERED AT
     16:48:03 ON 17 FEB 2004
L1       207946 S ANTIMICROBIAL
L2          260 S POLYPHEMUSIN
L3           60 S L1 (P) L2
L4           25 DUPLICATE REMOVE L3 (35 DUPLICATES REMOVED)
L5         3569 S HANCOCK R?/AU
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L6          40345 S ZHANG L?/AU
L7          43873 S L5 OR L6
L8             15 S L7 AND L2
L9              7 DUPLICATE REMOVE L8 (8 DUPLICATES REMOVED)
L10             2 S L9 NOT L4

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	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments	Error Definition	Errors
1	BRS	L1	48157	antimicrobial	USPAT; EPO; JPO; DERWENT	2004/02/17 16:44			0
2	BRS	L2	3	polyphemusin-like	USPAT; EPO; JPO; DERWENT	2004/02/17 16:44			0
3	BRS	L3	49	polyphemusin	USPAT; EPO; JPO; DERWENT	2004/02/17 16:45			0
4	BRS	L4	20	1 same 3	USPAT; EPO; JPO; DERWENT	2004/02/17 16:45			0
5	BRS	L5	78	hancock adj robert.in.	USPAT; EPO; JPO; DERWENT	2004/02/17 16:45			0
6	BRS	L6	6	zhang adj lijuan.in.	USPAT; EPO; JPO; DERWENT	2004/02/17 16:45			0
7	BRS	L7	1	((hancock adj robert.in.) or (zhang adj lijuan.in.)) and polyphemusin	USPAT; EPO; JPO; DERWENT	2004/02/17 16:46			0

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(FILE 'HOME' ENTERED AT 16:47:39 ON 17 FEB 2004)

FILE 'MEDLINE, CAPLUS, BIOSIS, EMBASE, SCISEARCH, AGRICOLA' ENTERED AT
16:48:03 ON 17 FEB 2004
L1 207946 S ANTIMICROBIAL
L2 260 S POLYPHEMUSIN
L3 60 S L1 (P) L2
L4 25 DUPLICATE REMOVE L3 (35 DUPLICATES REMOVED)
L5 3569 S HANCOCK R?/AU
L6 40345 S ZHANG L?/AU
L7 43873 S L5 OR L6
L8 15 S L7 AND L2
L9 7 DUPLICATE REMOVE L8 (8 DUPLICATES REMOVED)
L10 2 S L9 NOT L4

=> log y